

## **WAC 296-17A-3510 Classification 3510.**

### **3510-02 Plastics: Artificial marble manufacturing**

Applies to establishments engaged in the manufacture of plastic articles by molding a calcium carbonate material mixed with feed stock, a catalyst and dyes which are purchased from outside sources. When this material solidifies it resembles marble, and is used to make counter tops, sinks, novelty items such as, but not limited to, soap dishes, clock cases, and statues. Raw materials are mixed in large mixers until it has the consistency of bread dough. A release agent is sprayed onto empty molds so the finished items can be easily removed after they are set; then the mixture is poured directly into molds, placed into molds by hand, or forced into molds under pressure. The materials are cured at room temperature or with moderate heat (up to 140 degrees F). When the material has hardened, items are removed from the molds and trimmed, sanded or otherwise finished. Sanding may be done with power rotary sanders which create clouds of dust and require the use of respirators.

This classification excludes establishments engaged in the manufacture of a plastic product by any other method which are to be reported separately in the appropriate classification; establishments engaged in the manufacture of graphite composite goods which are to be reported separately in classification 3510-08; and the manufacture of fiberglass goods which are to be reported separately in classification 3511.

### **3510-03 Plastics: Extrusion, blow molding**

Applies to establishments engaged in the manufacture of plastic articles by blow molding or extruding. Processes vary, but all usually require the heating and melting of feed stock and mixing of other additives purchased from outside sources. Extrusion involves forcing material through dies; blow molding blows a bubble of plastic into the air and processes it through machinery, or forms an object in a mold by blowing air and material into it. Plastic items such as containers for milk, motor oil, bleach, or other liquids are typically made with a blow molding process, which is a fast, high volume operation. A bubble of molten plastic is blown into a mold and expanded to the shape of the mold with compressed air. The mold is kept cool with a liquid coolant that circulates through its cavities; when hot plastic is pressed against the mold, it cools and hardens in seconds. Sheets of plastic film are usually made by extruding a tube of hot plastic, expanding it with air pressure, then passing it through a series of rollers and cutters which roll it flat and cut it into two separate sheets. Plastic film is used for making plastic bags and other products. This classification includes the manufacture of plastic bags when the extrusion of plastic sheets is performed by employees of the plastic bag manufacturer. Other extrusion processes are used in the manufacture of window frame molding, gutters, pipe, and similar items.

This classification excludes establishments engaged in the manufacture of a plastic product by any other method which are to be reported separately in the appropriate classification; establishments engaged in the manufacture of graphite composite goods which are to be reported separately in classification 3510-08; and the manufacture fiberglass goods which are to be reported separately in classification 3511.

### **3510-04 Plastics: Vacuum forming**

Applies to establishments engaged in the manufacture of plastic goods through a vacuum forming process. Articles manufactured by this method include, but are not limited to, signs, display stands, windshields for boats and motorcycles, boat paddles, skylight windows, trays for packaging food or other items. Sheet goods are heated in an oven or in the molding area, and a vacuum is pulled on the mold, sucking the plastic in to conform to the shape of the mold. Items produced by this method harden and cool in a few minutes. In other techniques, liquid plastic is poured into a mold, a seal of mylar plastic is placed over it, then a vacuum is pulled on the mold forming the liquid to the mold. This method produces a smooth, glossy surface similar to those produced by injection molding, but without the high-cost machinery. For either method, once the plastic material hardens, the "flashing" (excess plastic) is trimmed from the formed article. This is called "deflashing" and may be done with a hand-held knife, a router, or a lathe. There is some assembly in certain manufacturing operations such as attaching components with screws, rivets, bolts, or glue, which is incidental to the manufacturing process and is included in the classification.

This classification excludes establishments engaged in the manufacture of a plastic product by any other method which are to be reported separately in the appropriate classification; establishments engaged in the manufacture of graphite composite goods which are to be reported separately in classification 3510-08; and establishments engaged in the manufacture of fiberglass goods which are to be reported separately in classification 3511.

**Special note:** The painting or lettering of signs is included in the plastic goods manufacturing classification when done by employees of an employer making signs. Establishments that purchase premanufactured plastic "mediums" from others, then paint lettering or designs or attach vinyl lettering to them in their own shops are to be reported separately in classification 4109.

### **3510-05 Plastics: Foam molding, rotary molding, liquid molding**

Applies to establishments engaged in the manufacture of plastic goods through foam molding, rotary molding or liquid molding processes. Raw materials, which may be received in barrels, drums, or rail cars, include, but are not limited to, small plastic beads, powder, pellets or liquids, and foaming agents. Establishments in this classification will frequently employ laboratory employees such as chemists or chemical engineers to formulate their own plastic compounds to meet specifications as to rigidity, flexibility, or fire retardation. Liquid polymer is mixed with one or more ingredients, in some cases including a foaming agent, then heated to control the foaming action. It may be forced through pipes or hoses from a dispensing machine into the mold, or workers may carry it in buckets from the mixing pot and pour it into the molds. The top of the mold is put in place and secured. Heat and air pressure is applied inside the mold, which causes the foam to rise and form the shape of the object being made. Workers may wear respirator masks during this phase. The mold may be lined with vinyl or other fabric, or wire frames may be placed inside the molds when making items such as armrests, cushions, dashboards for vehicles, boats, or aircraft. Goods usually set overnight, then the flashing (excess plastic) is trimmed off. Liquid plastic, such as urethane, without a foaming agent, is also used to make products that are extremely tough. Products made from this type of liquid mixture include, but are not limited to, parts for aircraft or industrial machi-

nery. Liquid mixtures are poured into molds and cured in ovens. Styrofoam products such as, but not limited to cups or plates, packaging materials are made from small styrofoam beads that are expanded by heating, then forced or blown into a mold and heat-expanded to form the product. Logos or brand names may be printed onto the products with a special offset press. Rotary molding is used for large hollow items like garbage cans or buckets. Plastic powder, mixed with color, is poured into molds; molds are closed and moved on a rotating arm through a large oven in a tumbling action while the mold heats. The plastic powder sticks to the inside of the mold and melts. The mold is removed from the oven while still tumbling, and air and/or water cooled. Finished products are then removed from the molds.

This classification excludes establishments engaged in the manufacture of a plastic product by any other method which is to be reported separately in the appropriate classification; establishments engaged in the manufacture of graphite composite goods which are to be reported separately in classification 3510-08; and the manufacture of fiberglass goods which are to be reported separately in classification 3511.

### **3510-06 Plastics: Injection molding**

Applies to establishments engaged in the manufacture of plastic goods through an injection molding process. Articles made by injection molding range widely; they include, but are not limited to, key chain holders, writing pens, combs, medicine bottles, novelty items, sporting goods, and cargo baskets for industrial use. The size of injection molding machines ranges widely, depending on the products being made. Raw materials, which are usually in the form of tiny plastic beads, are received from outside sources in barrels, drums or rail cars. The pellets are placed in a dryer to remove any moisture, then fed through a hopper on the injection molding machine into an air-free chamber where they are melted at high temperatures, then forced with an auger-type screw, ram piston or similar device, into the mold. The mold is cooled by a coolant to allow the plastic to solidify rapidly. When solidified, the item is ejected from the mold by air pressure, hydraulics, or a mechanical ram. Items may be trimmed, polished, assembled, plated, or otherwise finished. Establishments in this classification may make molds for their own use, or the customer brings molds for specific items they order. The manufacture or repair of their own or their customer's molds is included within the scope of this classification when done by employees of an employer subject to this classification.

This classification excludes establishments engaged in the manufacture of a plastic product by any other method which are to be reported separately in the appropriate classification; establishments engaged in the manufacture of graphite composite goods which are to be reported separately in classification 3510-08; and the manufacture of fiberglass goods which are to be reported separately in classification 3511.

### **3510-07 Plastics: Manufacture, N.O.C.**

Applies to establishments engaged in the manufacture of plastic goods not covered by another classification (N.O.C.) using several of the operations described in the other plastics manufacturing classifications, but not having one predominate process. This classification *could* include the application of fiberglass resins with a brushing or spreading technique (sometimes referred to as "lay-up"). In the lay-up method, fabric is fitted over molds, then layers of fiberglass resins,

hardeners, and fillers are applied over the fabric with a brush or trowel. In some applications, a thin foam material is fitted into a mold, then covered with fiberglass resins and hardeners; when the product is removed from the mold, the other side is coated, producing an exceptionally strong, lightweight product. Once removed from the molds, items are heated in ovens to harden and set. This classification also includes establishments that make pellets (feed stock) from recyclable plastic goods. Scraps or recyclable goods are ground or pulverized, then formed into pellets which can be used again in manufacturing processes, or further processed into oil by other manufacturers.

This classification excludes establishments engaged in the manufacture of a plastic product by any other method which are to be reported separately in the appropriate classification; establishments engaged in the manufacture of graphite composite goods which are to be reported separately in classification 3510-08; and establishments engaged in the manufacture of fiberglass goods which are to be reported separately in classification 3511.

**Special notes:** When the manufacture of plastic goods includes any fiberglass work using the spraying technique with a chopper gun, the entire operation is to be reported separately in classification 3511. Incidental hand brushing or troweling of fiberglass resins or epoxy over a fabric or foam material, is sometimes an integral part of manufacturing processes covered under other manufacturing classifications. A review of the manufacturing process must be made to determine the proper classification applicable to that manufacturing process.

#### **3510-08 Graphite composite goods: Manufacturing**

Applies to establishments engaged in the manufacture of fiber reinforced plastic goods. Products manufactured by establishments subject to this classification include, but are not limited to, golf club shafts, fishing poles and rod blanks, garden carts, hose reels, wind board sail masts, bicycle frames, tennis racquets, snow skis and auto parts. While the classification specifies graphite composite goods, other fiber reinforced plastics are used to make similar products and are covered by this classification. Graphite composites are also known as carbon reinforced composites. Irrespective of the product made, the processes used to produce the end products are similar. For example, the making of tube-like products such as, but not limited to, golf shafts, wind board sail masts, and fishing poles, consists of cutting a fabric-like material which is purchased from others to the specified dimension needed to make the product; rolling the material onto a mandrel (rod) or wrapping the material around a mold; securing the fabric material with a plastic (cellophane) tape; curing the product in an oven; removing the cellophane wrap; removing the mandrel or mold; sanding the product to remove the lines left by the cello wrap; and applying the finish.

This classification excludes the manufacture of nonfiber reinforced plastic goods or products which are to be reported separately in classification 3510 as applicable; fiberglass reinforced goods or products which are to be reported separately in classification 3511; and plastic goods manufacturing from premanufactured components including the cutting, bending and milling of plastic which are to be reported separately in classification 3512.

**Special note:** Care should be taken when encountering the term "graphite composite." Graphite is a material common to many products

such as, but not limited to, lead pencils, paints, lubricants and protective coatings, none of which are covered by classification 3510.

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